

FIG. 1A

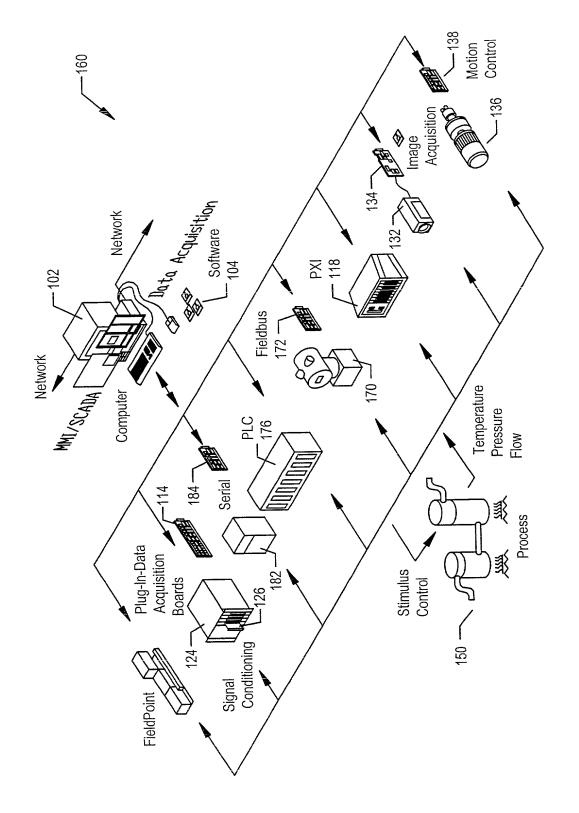


FIG. 1B

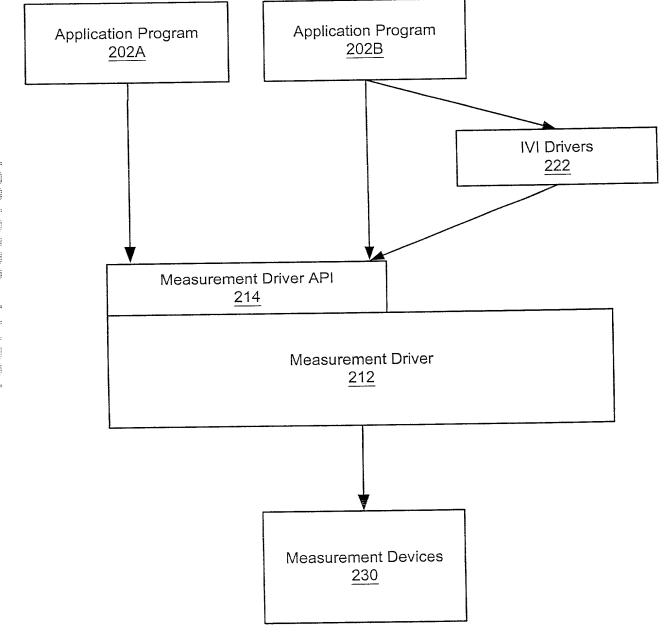


Figure 3

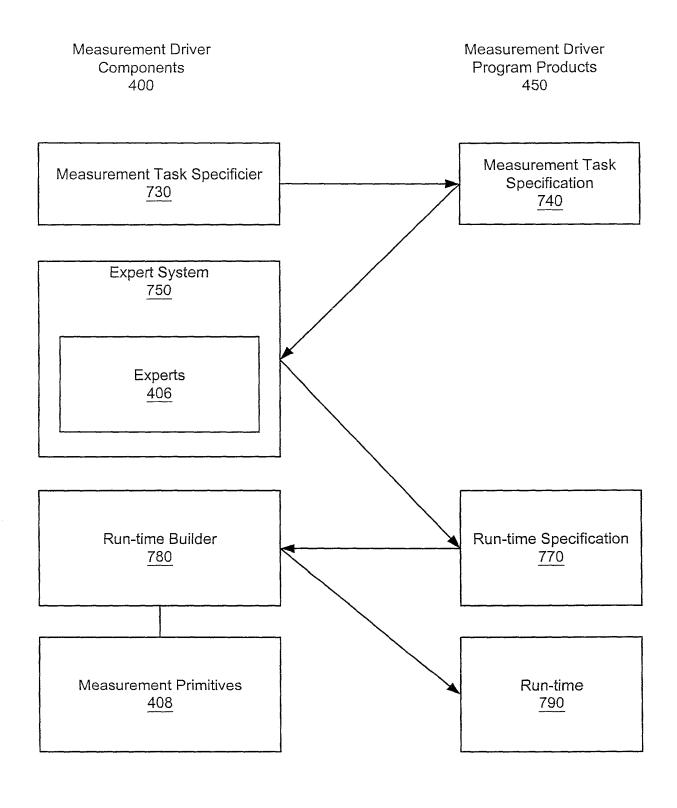


Figure 4

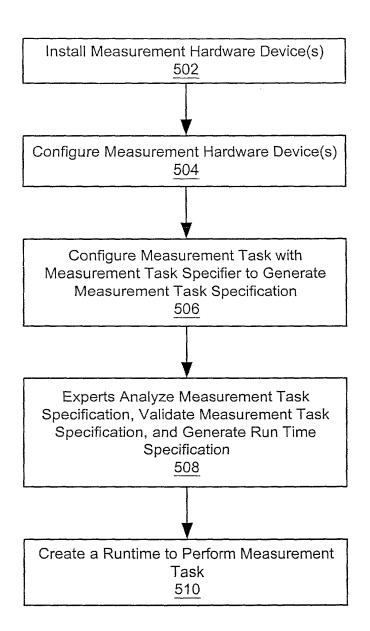
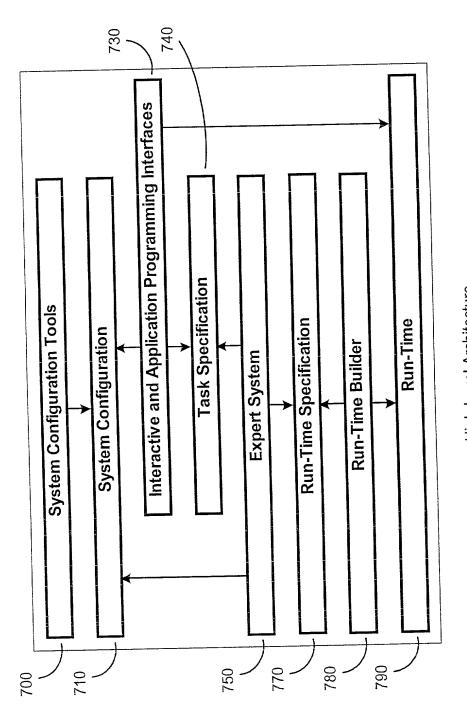


Figure 5



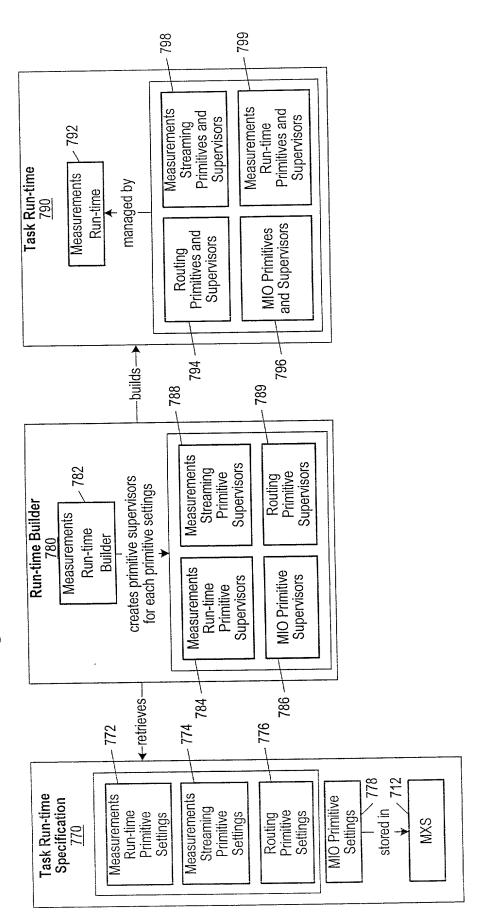
High-Level Architecture

Figure 6

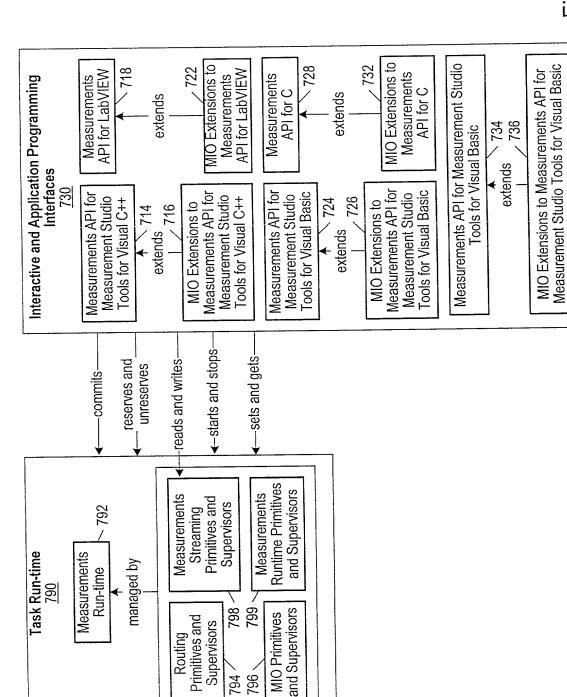
stored in 712 Task Specification 740 •xtends 742 Measurements Figure 7A MIO MSOs MSOs MXS measurements. specification produces Interactive and Application Programming Interfaces to Measurements API for C Measurements API for LabVIEW **MIO Extensions** to Measurements Measurements API for C API for LabVIEW **MIO Extensions** extends extends 736 Measurements API for Measurement Studio × 734 Tools for Visual Basic Measurements API for Measurement Studio Tools for Visual Basic MIO Extensions to extends 724 × 714 MIO Extensions to Measurements API Measurements API MIO Configuration Tool Plug-in for Measurement Studio Tools for for Measurement Studio Tools for Measurements Configuration Visual C++ Visual C++ extends extends Tool configuration retrieves system 708 706 System Storage Measurements MIO System Configuration Configuration stored in System extends Fools WXS configuration produces system 704 Configuration DAQ MAX plugs in System Provider Tools MAX 700

System Configuration and Task Specification

Building Task Run-time from Task Run-time Specification



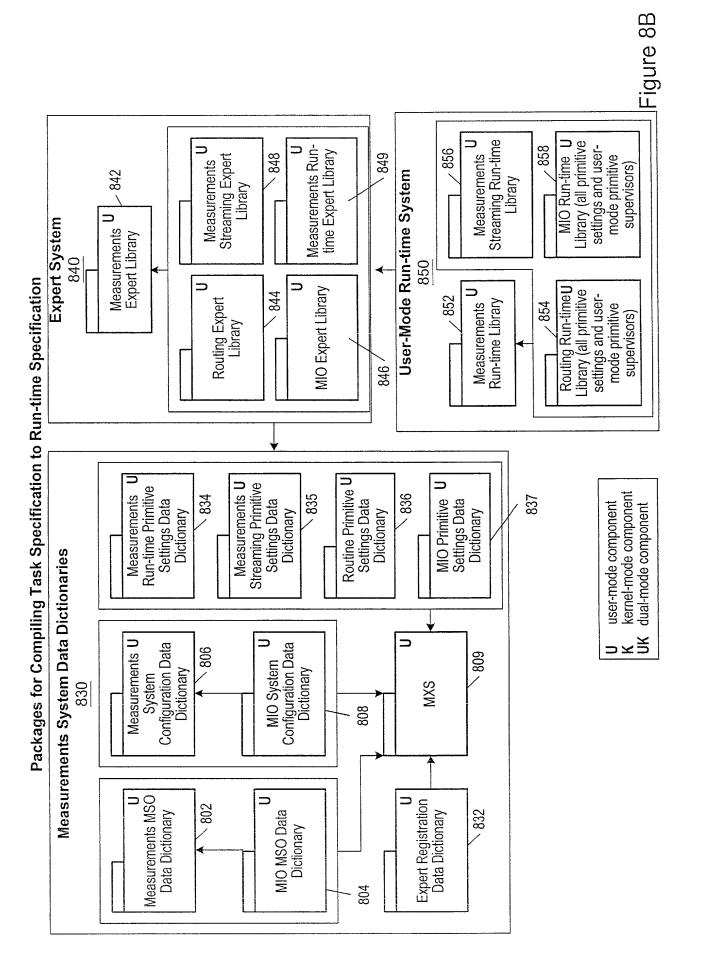
Executing Tasks

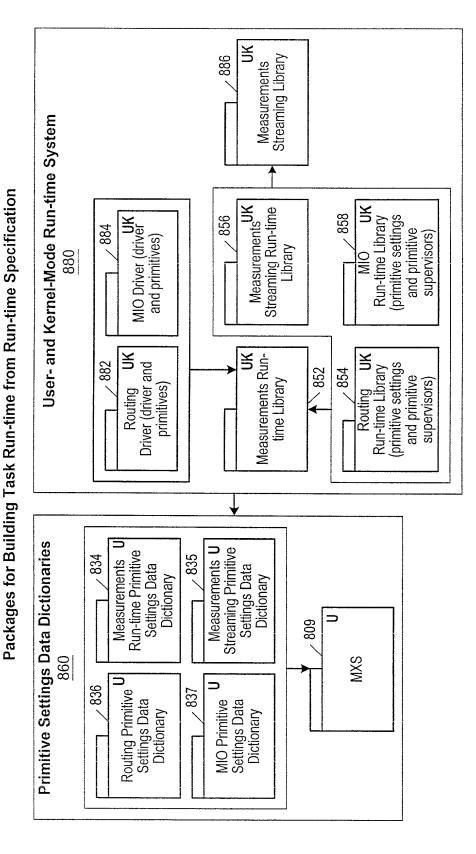


Packages for System Configuration and Task Specification

to Measurements API for Measurement Studio Tools for Visual Measurements API U Studio Tools for Visual Basic Library Measurements API U Measurements API for MIO Extensions U for Measurement Studio Tools for Visual Measurement Studio Tools for Visual C++ 829 828 825 ×824 MIO Extensions to for Measurement Basic Library C++ Library Library **API Libraries** 820 MIO Extensions to Measurements API for LabVIEW Library MIO Extensions to Measurements API for C Library Measurements API for C Library for LabVIEW Library 827 Measurements API 826 823 822 Measurements U Configuration Data Dictionary Configuration Data Dictionary > 806 808 MIO System × 809 System Data Dictionaries 800 kernel-mode component user-mode component dual-mode component MXS Measurements MSO 802 MIO MSO Data Dictionary Data Dictionary 804 System Configuration 814 DAQ MAX Provider 812 Tools MAX 810

Figure 8A

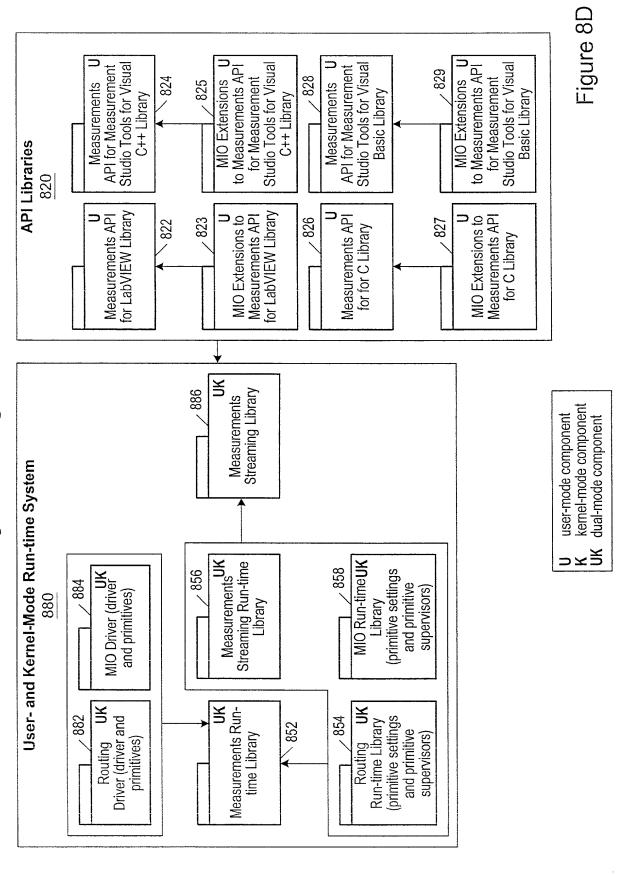


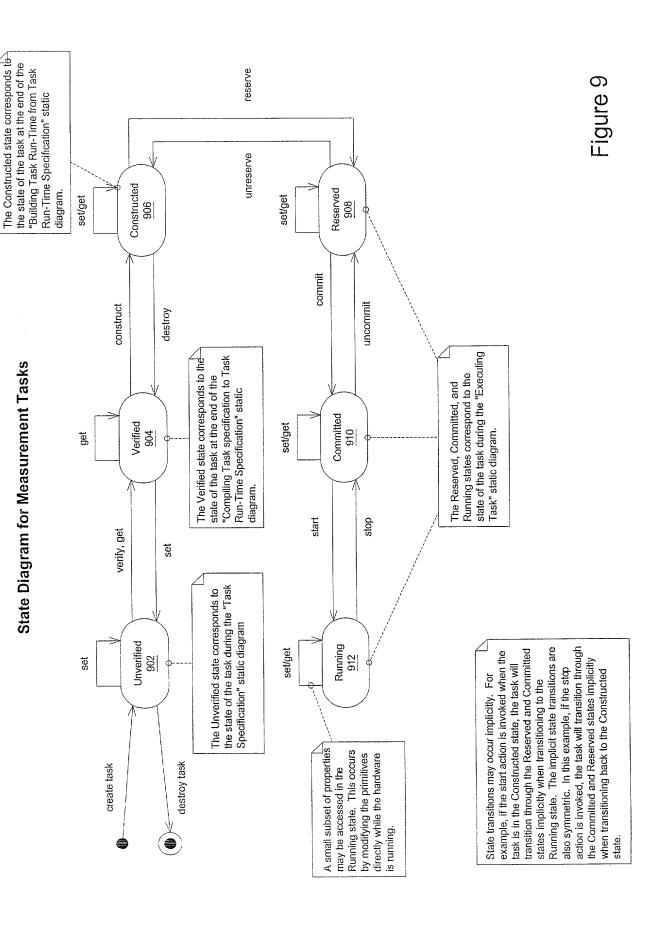


kernel-mode component user-mode component dual-mode component

Figure 8C

Packages for Executing Task Run-time





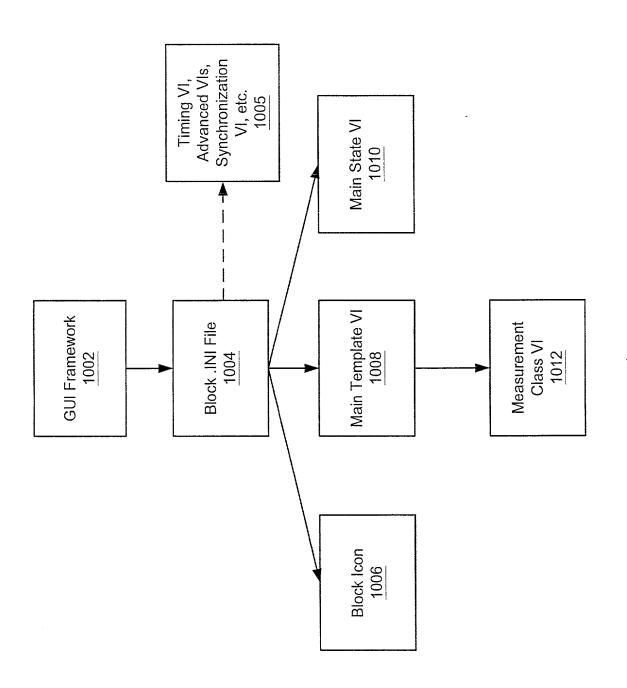


Figure 10

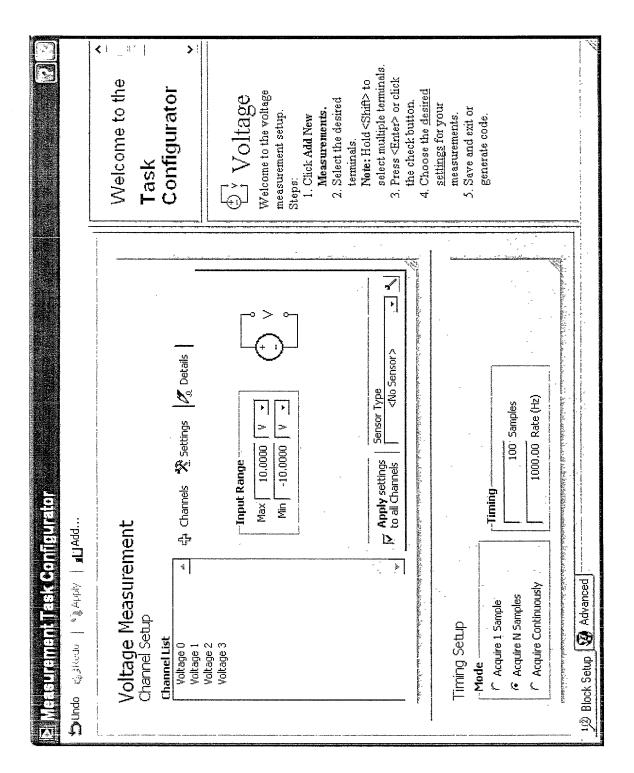


Figure 11

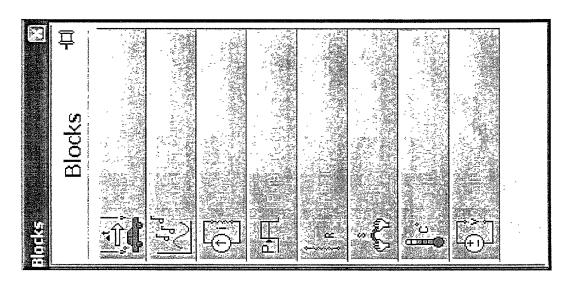


Figure 12A

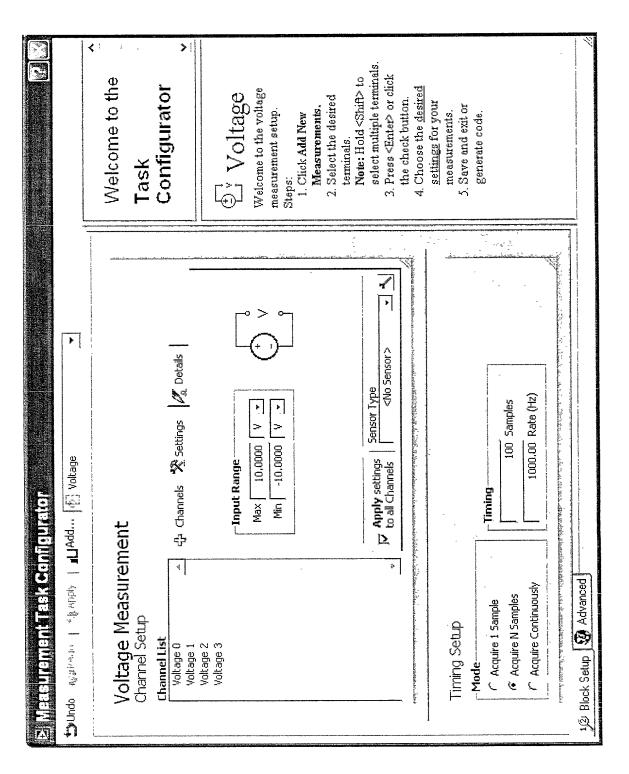


Figure 12B

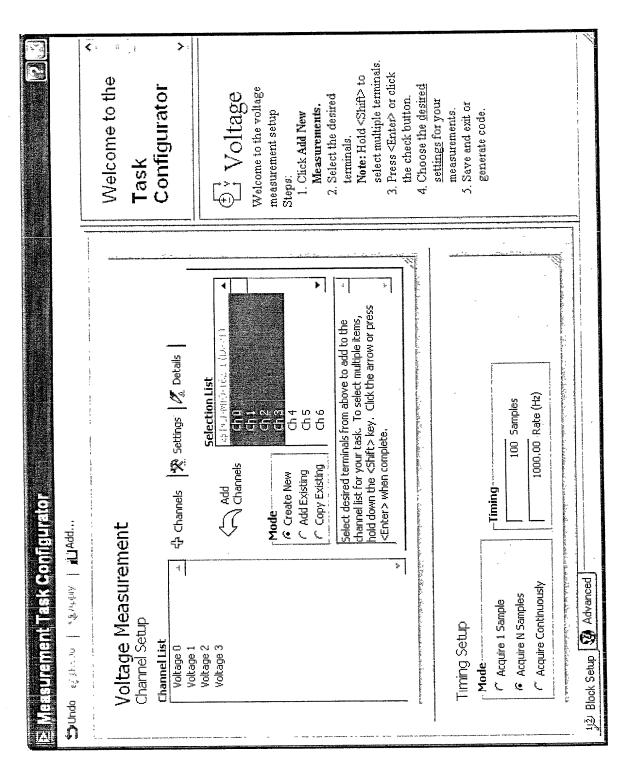


Figure 12C

를 Measurement Task Configurator	
Condo Spredo Pepiy ILlAdd	
	∴ Welcome to the
Voltage Measurement Channel Setup	Task
Channel List Voltage 0 - ्री Channels 🔆 Settings 🦧 Details	Configurator
Voltage 2 Voltage 3 Custom Scaling workage 3	

Figure 12D

E Measurement Task Configurator		
Undo (gyacaka) s∰akapiya M_Add		
· Task Data	man endere den mann erhold for temperature i control exclusiones de l'or des montes malen et l'or	Welcome to the
Scaled • Data Format Waveform • Data Type	Advanced Task	Task Configurator
File Path 'B.C:{MyData}data.bin	Configuration	>:
		(Voltage Welcome to the voltage
Triggering	Reset all to Default	measurement setup. Steps:
Source Slope Trigger Type CV PFI 0 1 Rising Analog Level 1	sing • Level	Measurements. 2. Select the desired terminals. Note: Hold <shifl> to select multiple terminals.</shifl>
Source Edge Trigger Type Digital Edge	Rising • 0	3. Press <enter> or click the check button. 4. Choose the <u>desired</u> <u>settings</u> for your measurements. 5. Save and each or</enter>
Pause Trigger Type		generate code.
1/2 Block Setup 🗷 Advanced		

Figure 13

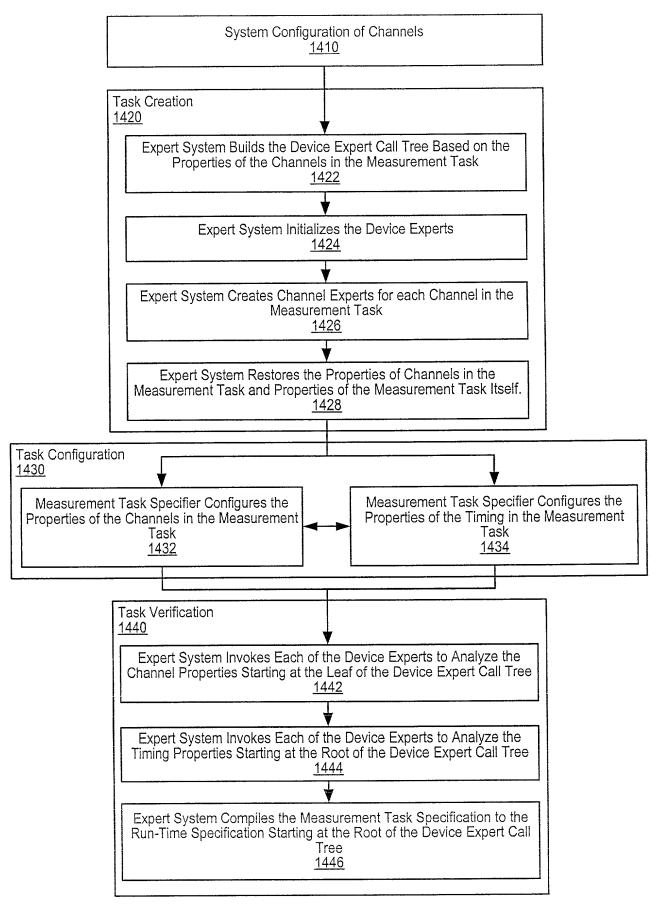


Figure 14

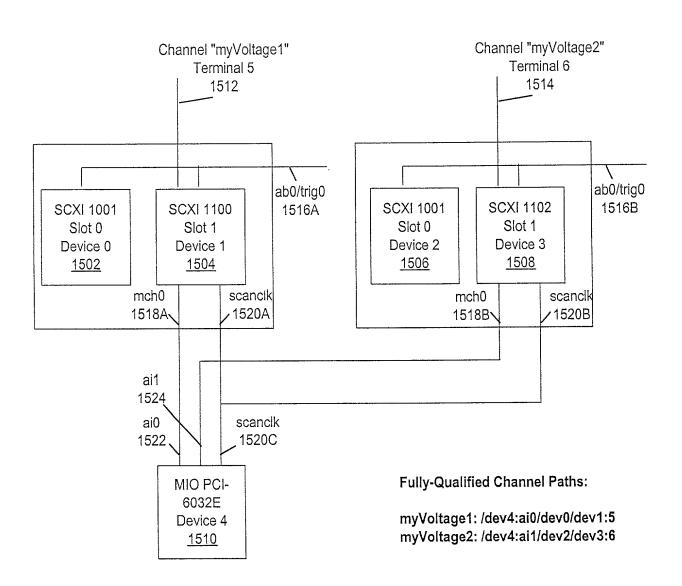
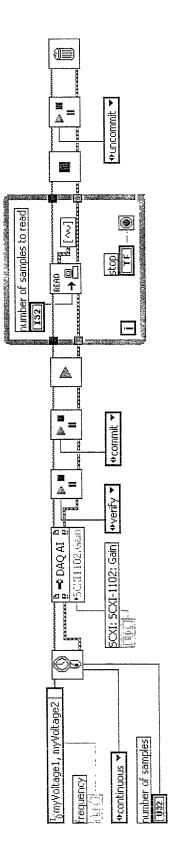
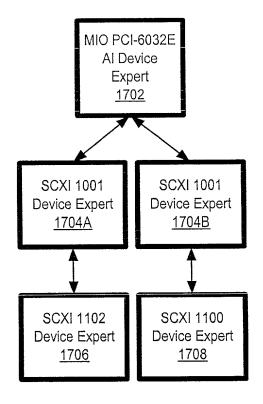


Figure 15



Voltage On Two Channels with Two SCXI Modules in Two SCXI Chassis Connected to an MIO DAQ Device

Figure 16



Create Device Expert Call Tree

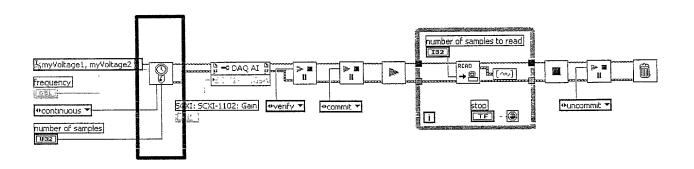
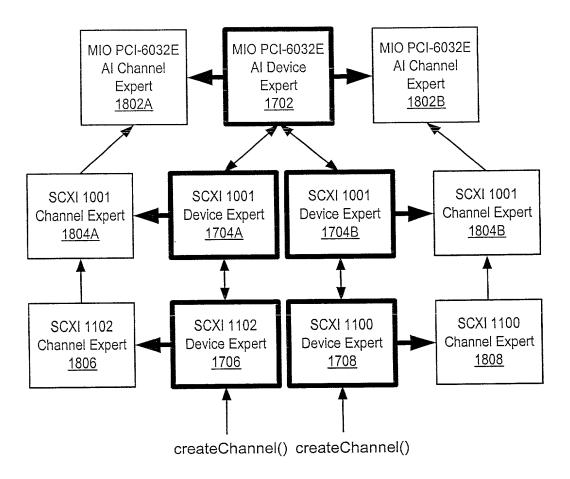


Figure 17



Create Channel Experts

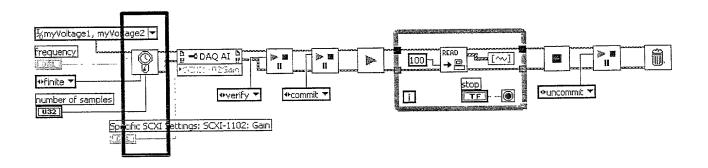
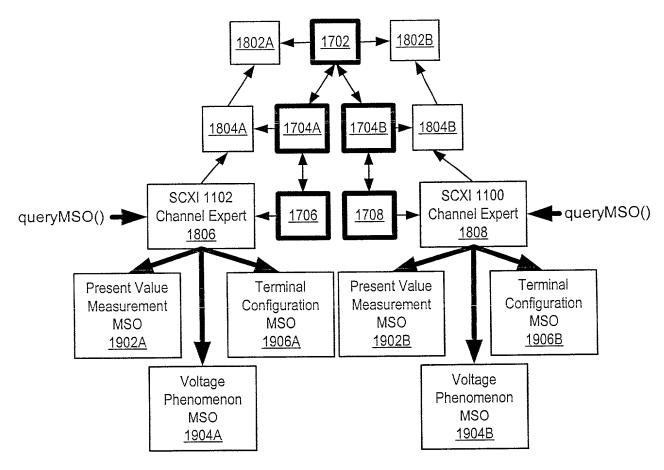


Figure 18



Deserialize Named Channel MSOs

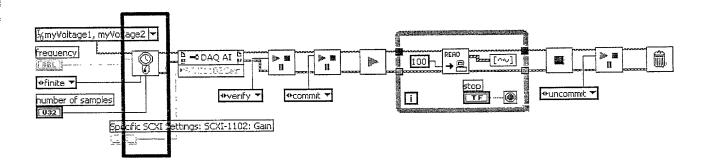
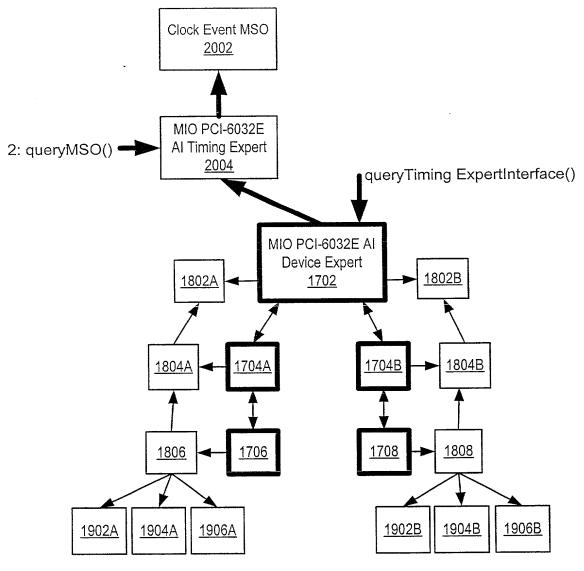


Figure 19



Configure Timing Experts

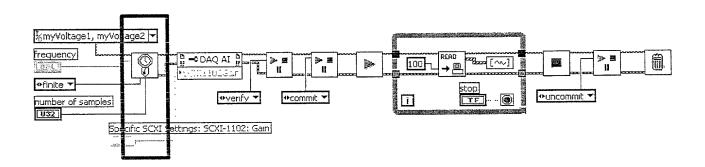
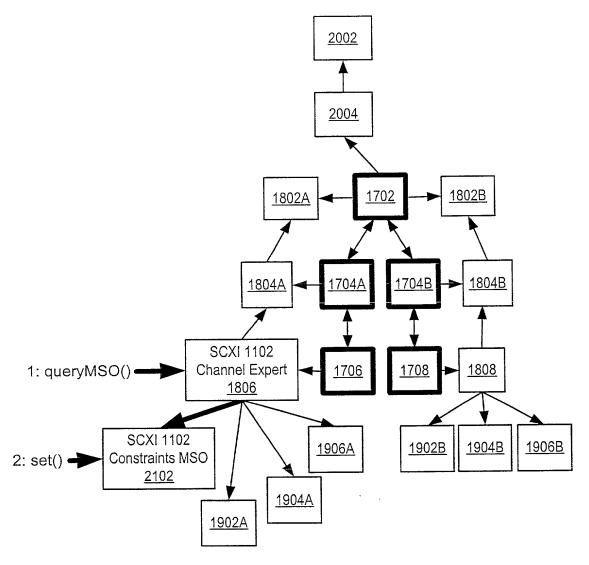


Figure 20



MSO Set Calls

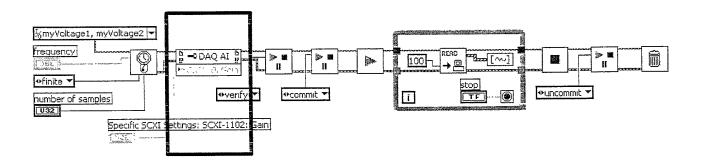
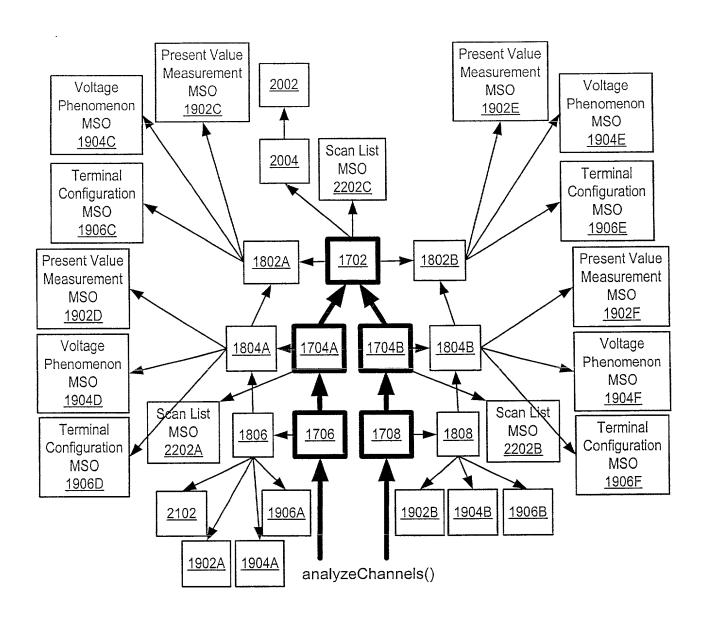


Figure 21



Analyze Channels

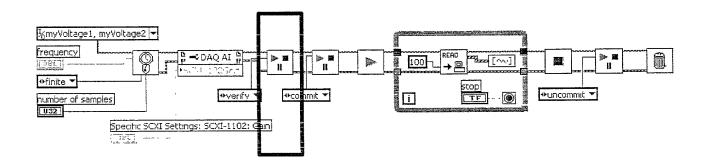
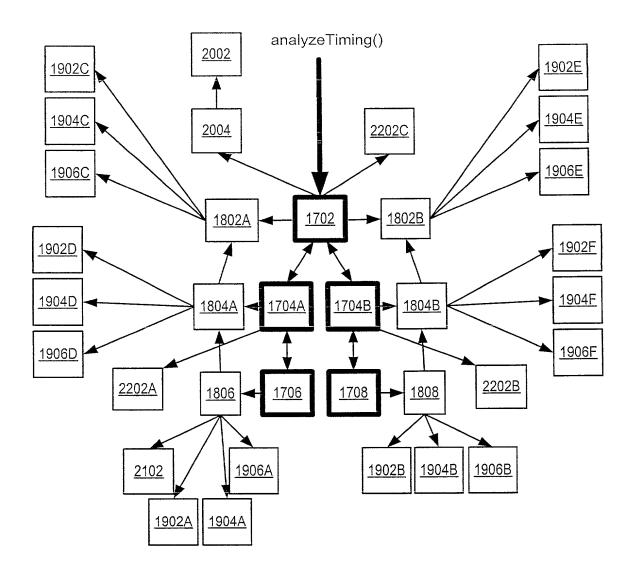


Figure 22



Analyze Timing

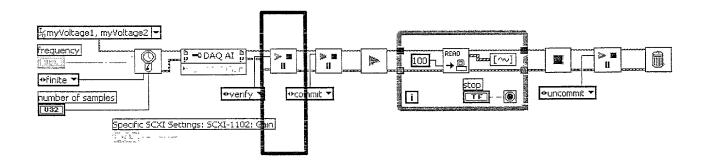
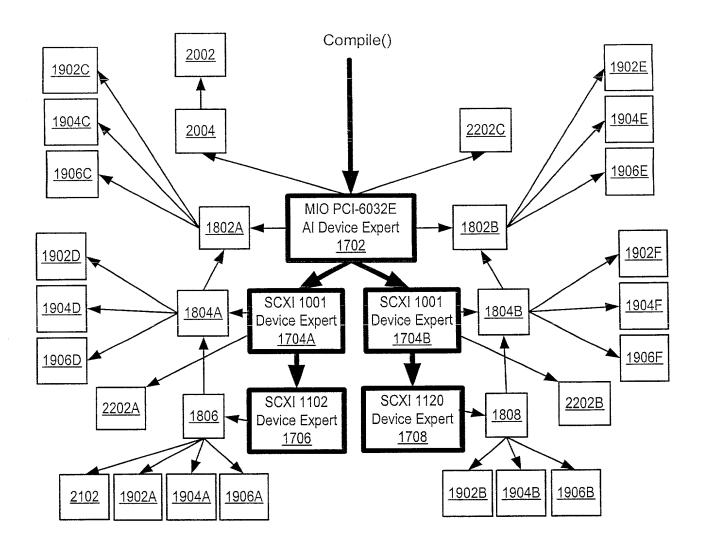


Figure 23



Compile

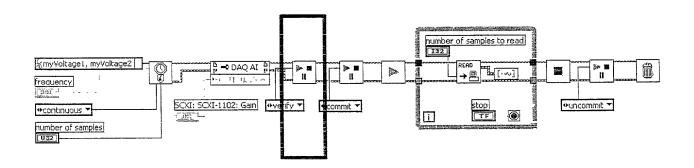
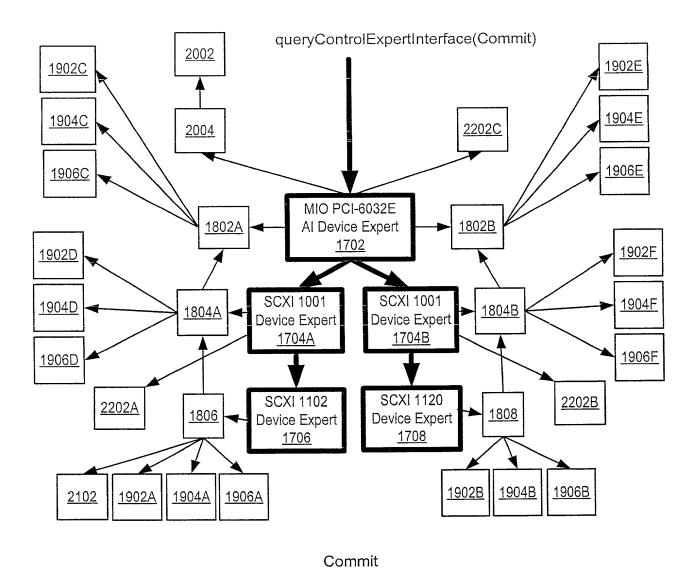


Figure 24A



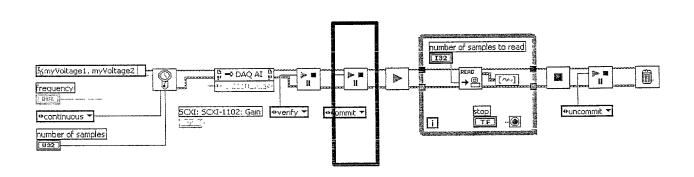
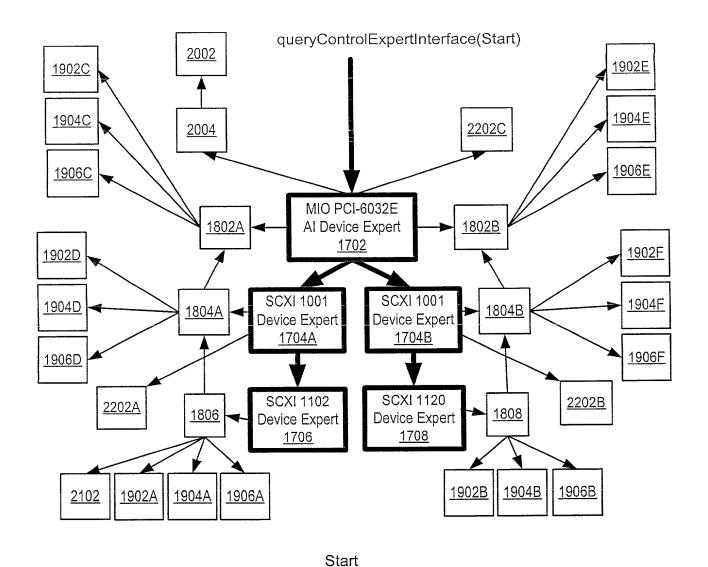


Figure 24B



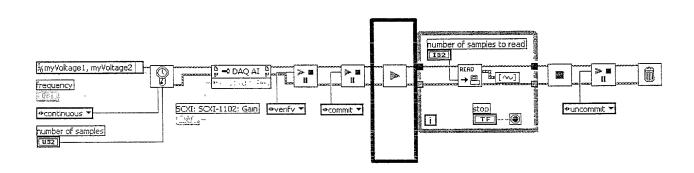
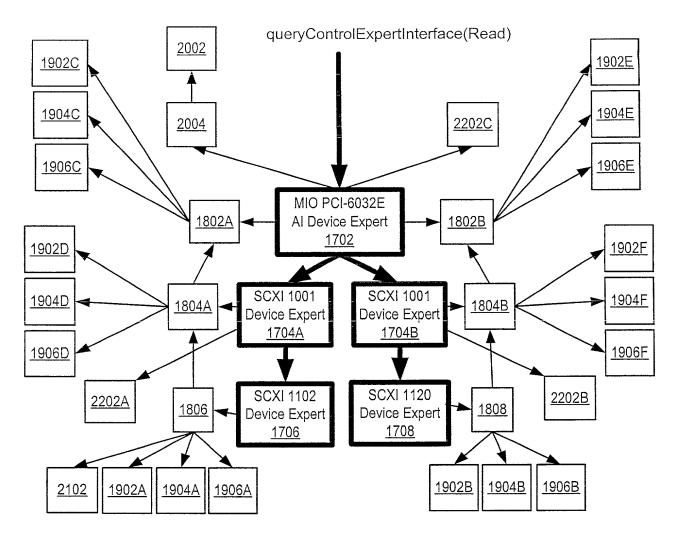


Figure 24C



Read

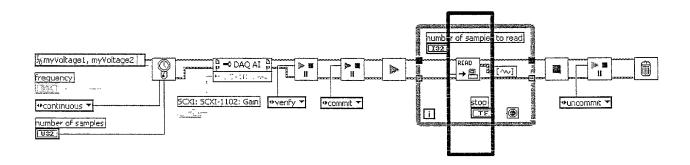
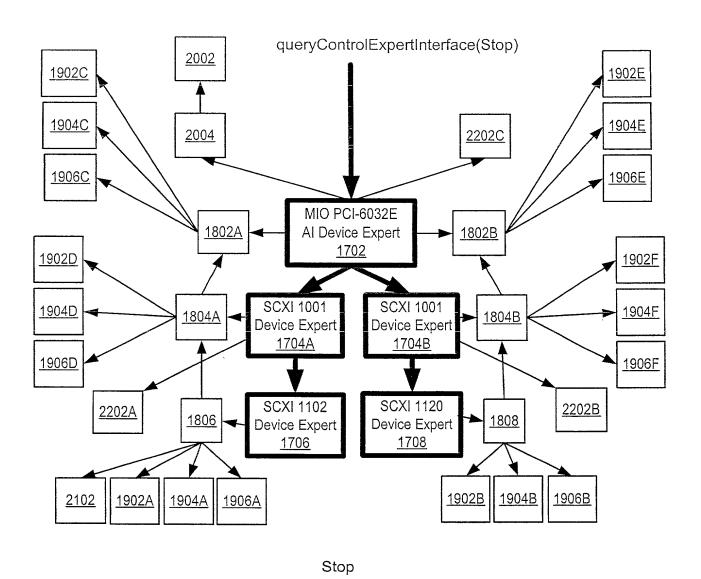


Figure 24D



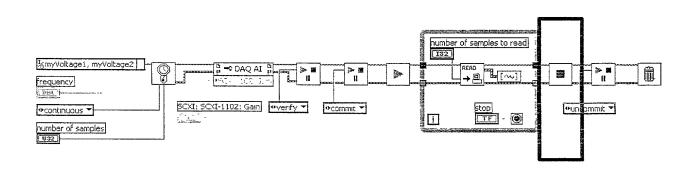
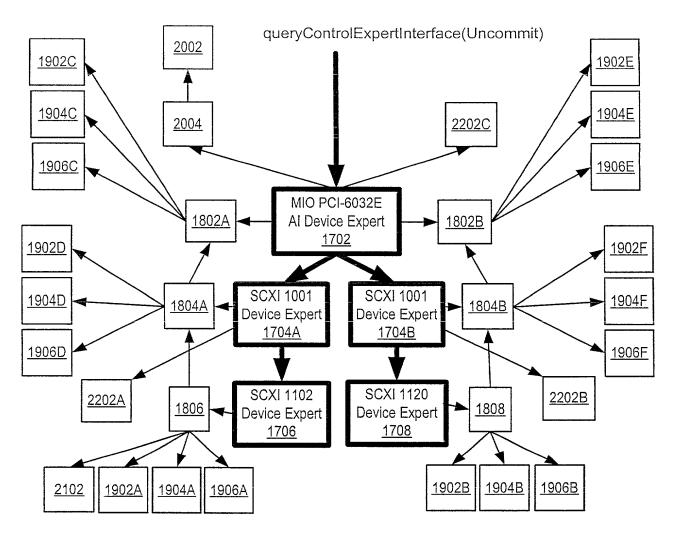


Figure 24E



Uncommit

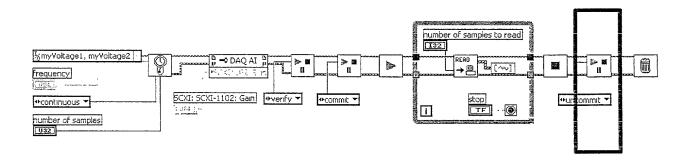
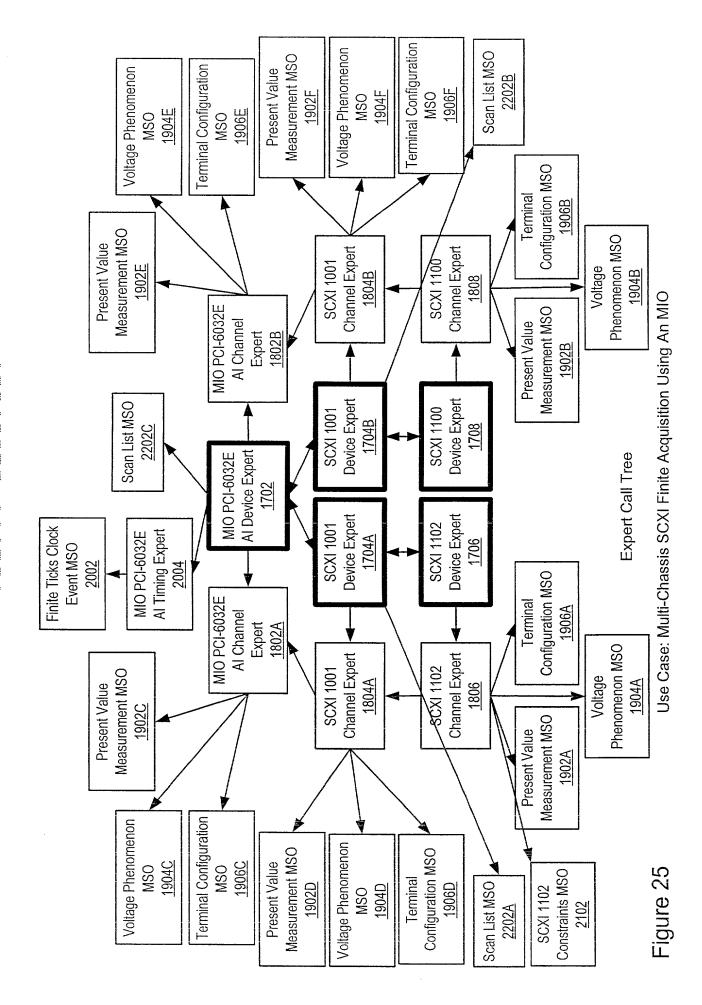


Figure 24F



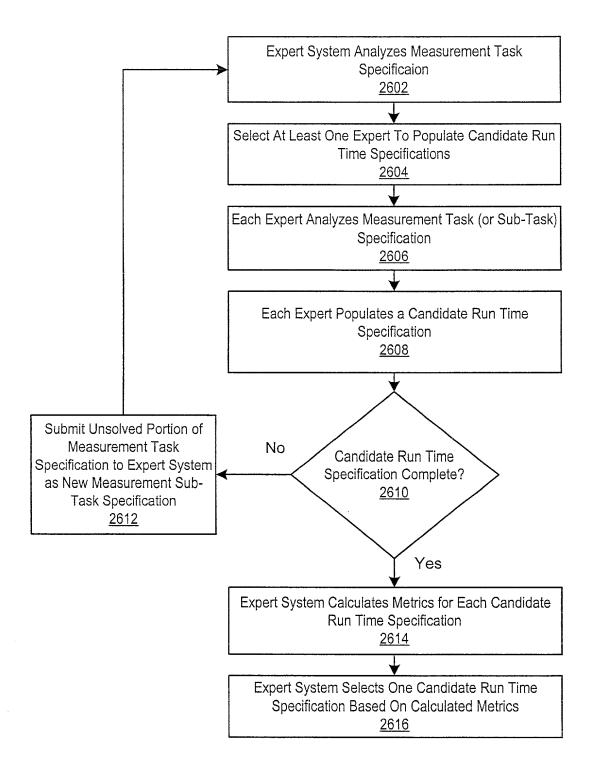


Figure 26

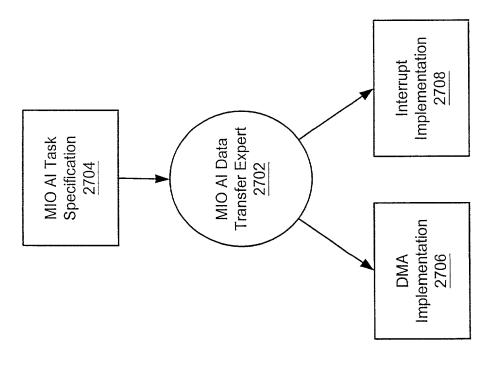


Figure 27

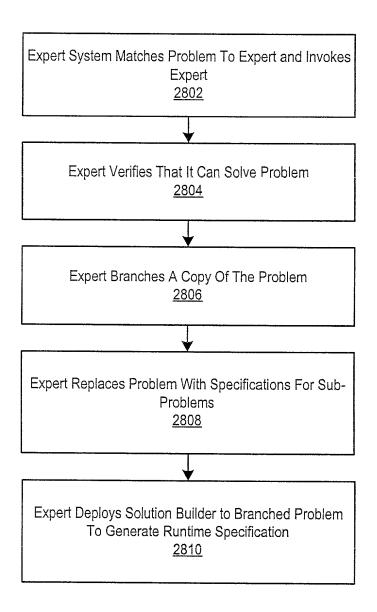


Figure 28

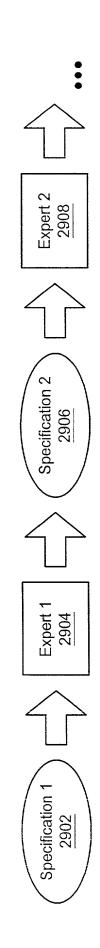


Figure 29

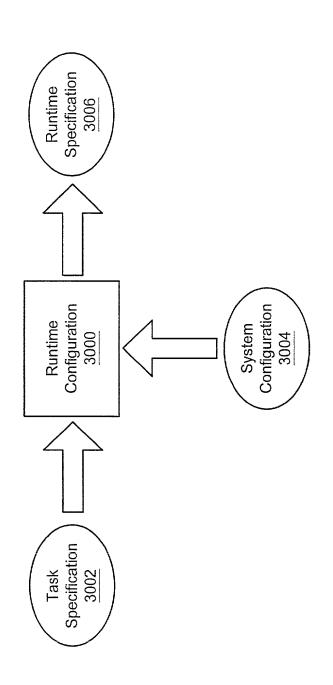


Figure 30

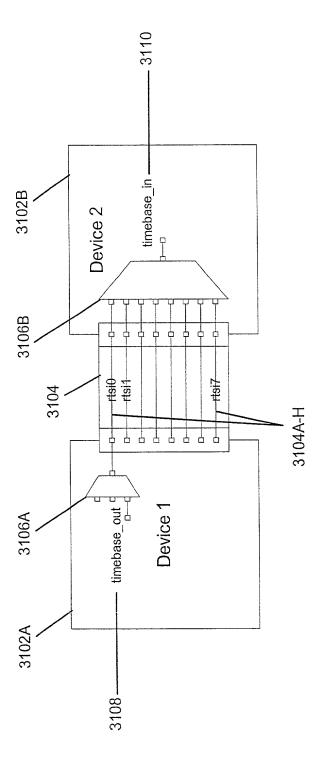


Figure 31

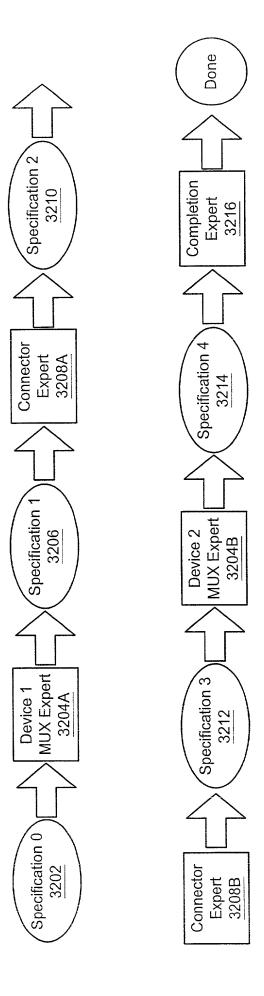


Figure 32

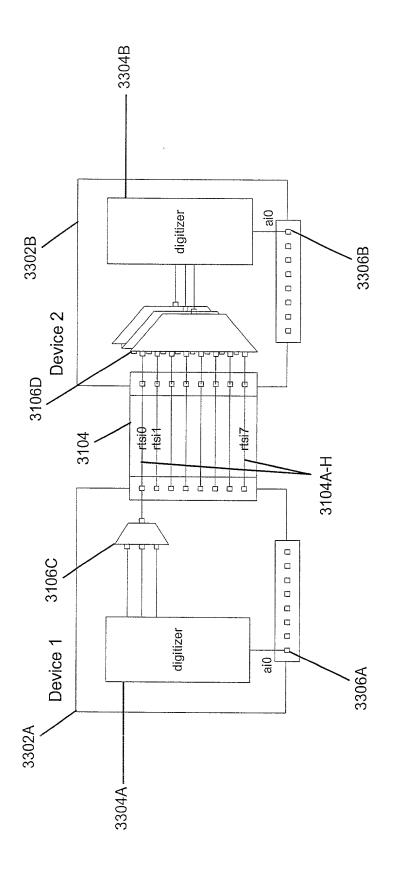


Figure 33

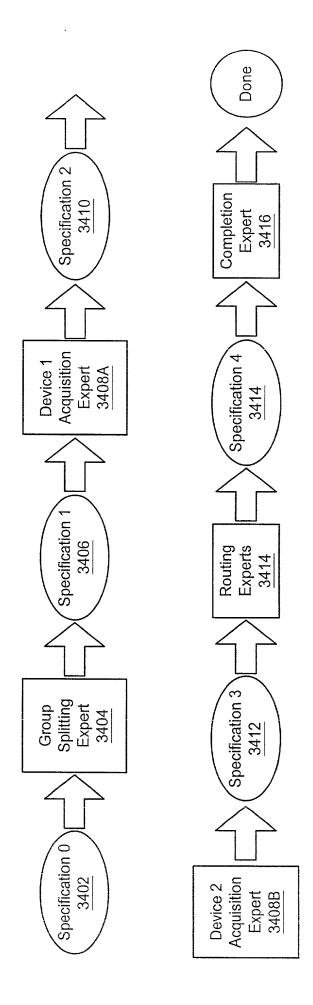


Figure 34

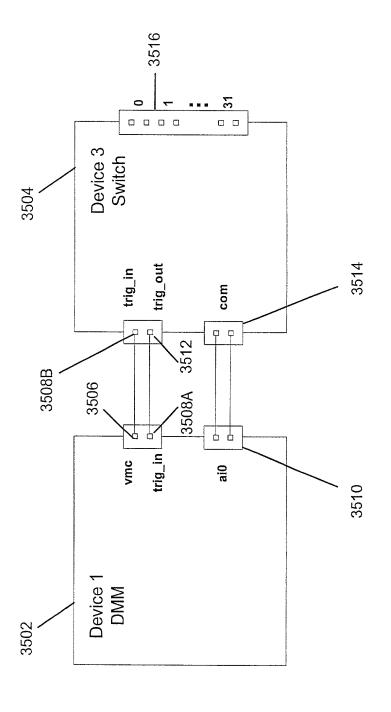


Figure 35

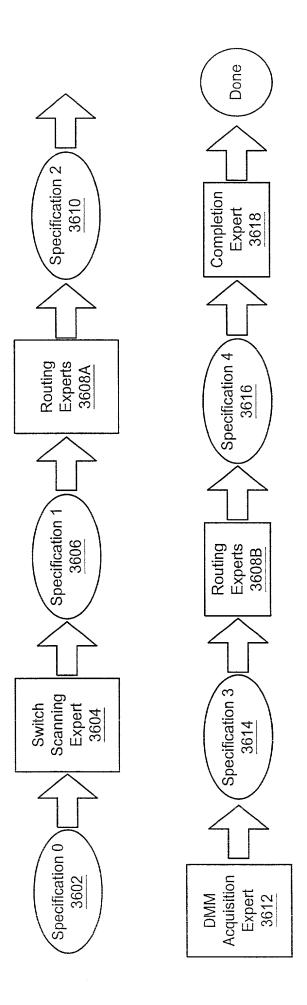


Figure 36

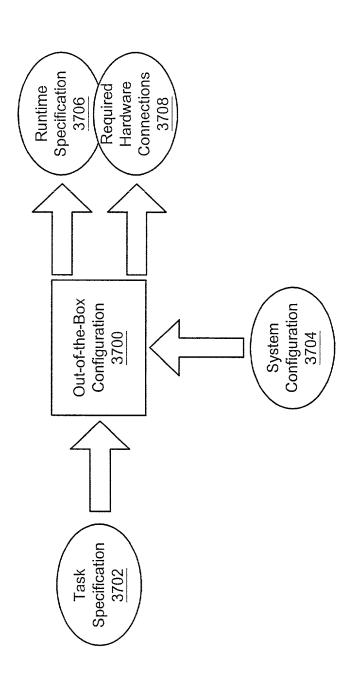


Figure 37

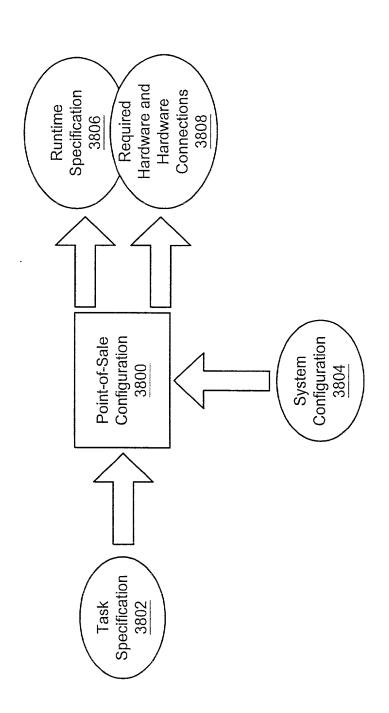
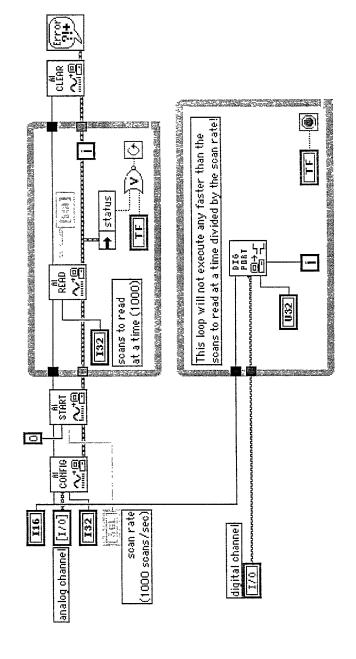
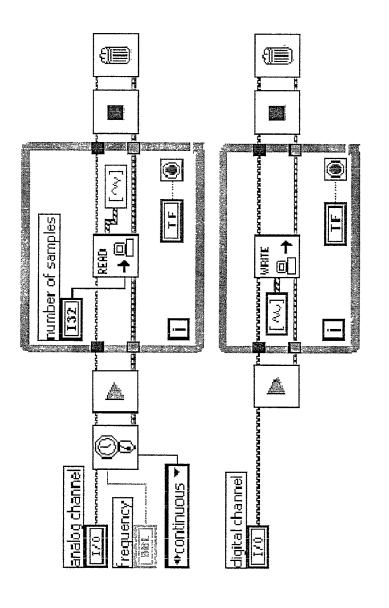


Figure 38



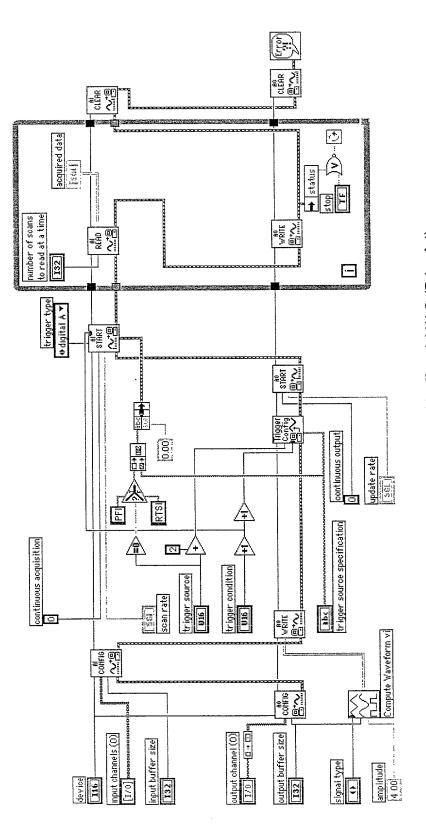
Simultaneous Buffered Analog Input And Single Point Digital Output With Single-Threaded Driver (Prior Art)

Figure 39A (Prior Art)



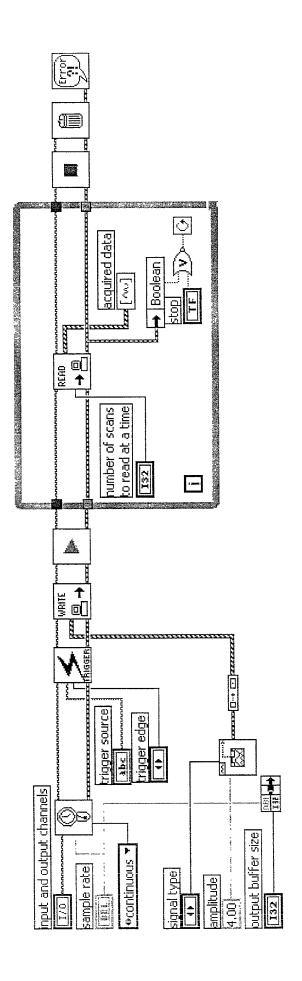
Simultaneous Buffered Analog Input And Single Point Digital Output With Multi-Threaded Driver

Figure 39B



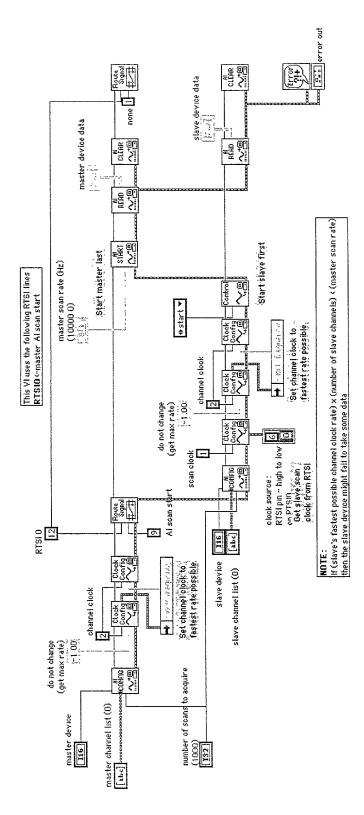
Simultaneous Triggered Buffered AI/AO (Prior Art)

Figure 40A



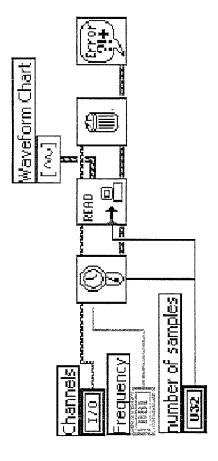
Simultaneous Triggered Buffered AI/AO

Figure 40B



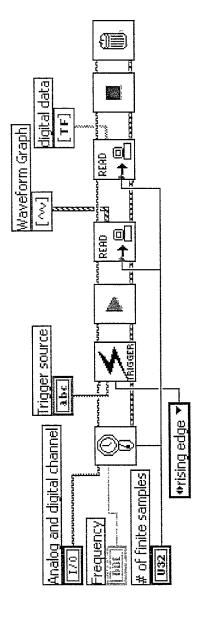
Sharing Scan Clock Across Two E-Series Devices (Prior Art)

Figure 41A



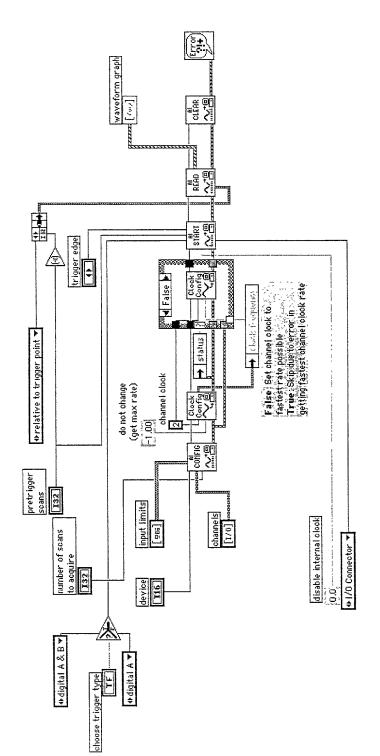
Sharing Scan Clock Across Two E-Series Devices

Figure 41B



Sharing Clock And Trigger, Buffered Al & DI

Figure 42



Acquire N Scans External Scan Clock Digital Trigger (Prior Art)

Figure 43A (Prior Art)

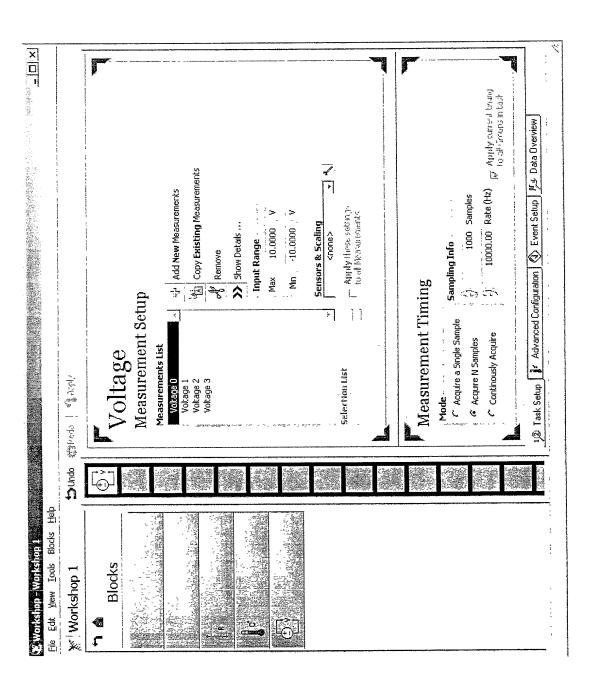


Figure 43B

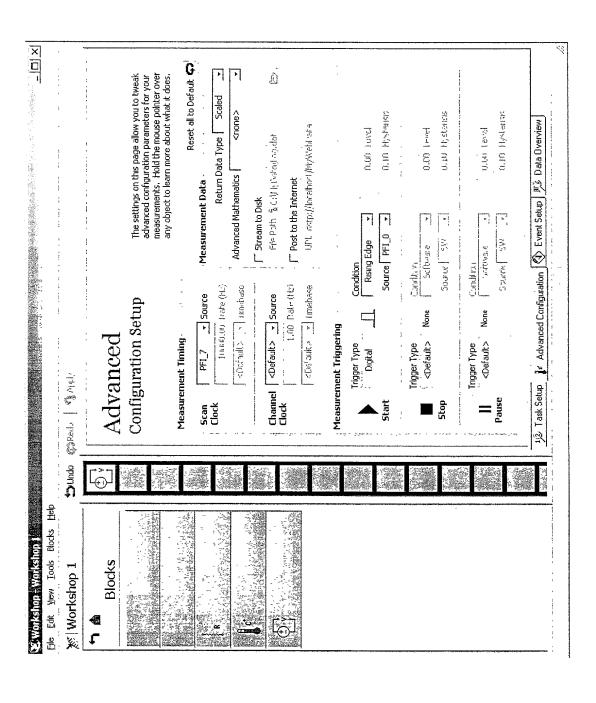
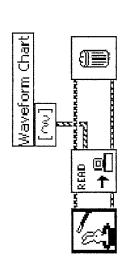
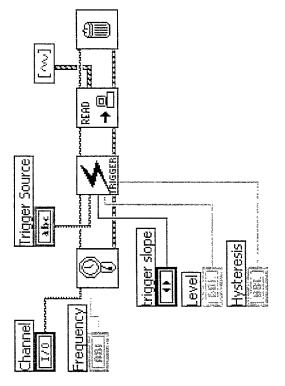


Figure 43C



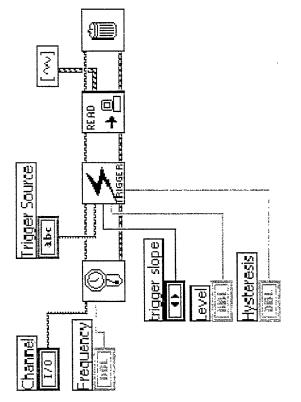
Acquire N Scans External Scan Clock Digital Trigger

Figure 43D



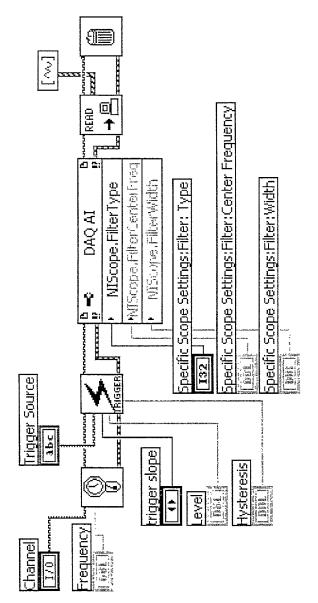
Triggered Acquisition With E-Series Device

Figure 44A



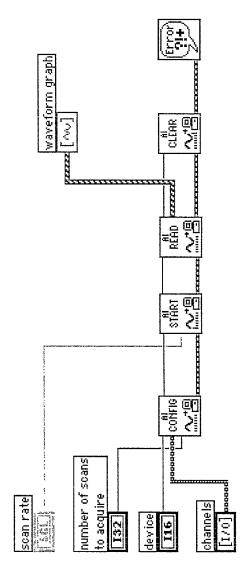
Triggered Acquisition With High Speed Digitizer

Figure 44B



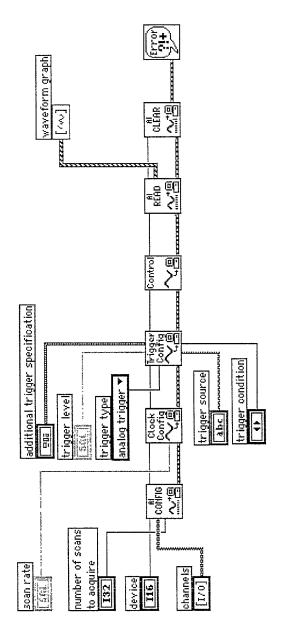
Triggered Acquisition With High Speed Digitizer With Filtering

Figure 44C



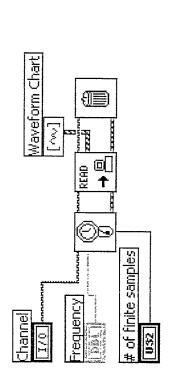
Intermediate Layer (Prior Art)

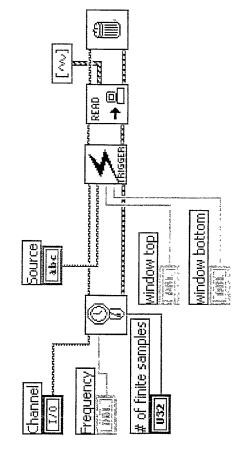
Figure 45A



Changes For Analog Window Triggering (Prior Art)

Figure 45B





Analog Window Triggering

Figure 45C